



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/730,738	12/08/2003	Gerard J. Carlson	200309595-1	3971
22879	7590	12/02/2004	EXAMINER	
HEWLETT PACKARD COMPANY P O BOX 272400, 3404 E. HARMONY ROAD INTELLECTUAL PROPERTY ADMINISTRATION FORT COLLINS, CO 80527-2400			FITZGERALD, JOHN P	
			ART UNIT	PAPER NUMBER
			2856	

DATE MAILED: 12/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/730,738	Applicant(s) CARLSON ET AL.	
	Examiner John P Fitzgerald	Art Unit 2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 October 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-49 is/are pending in the application.
- 4a) Of the above claim(s) 2,5,7,10-22,26 and 30-42 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,4,6,8,9,23-25,27-29 and 43-49 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Claims 2, 5, 7, 10-22, 26 and 30-42 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 18 October 2004.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

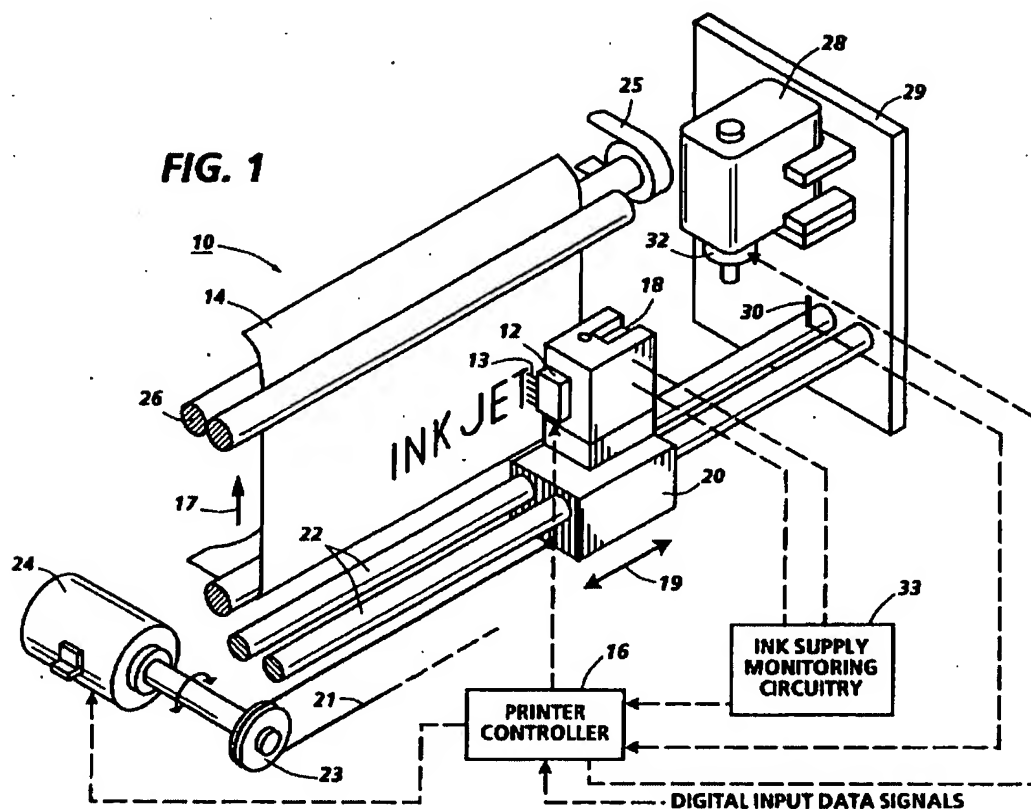
A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

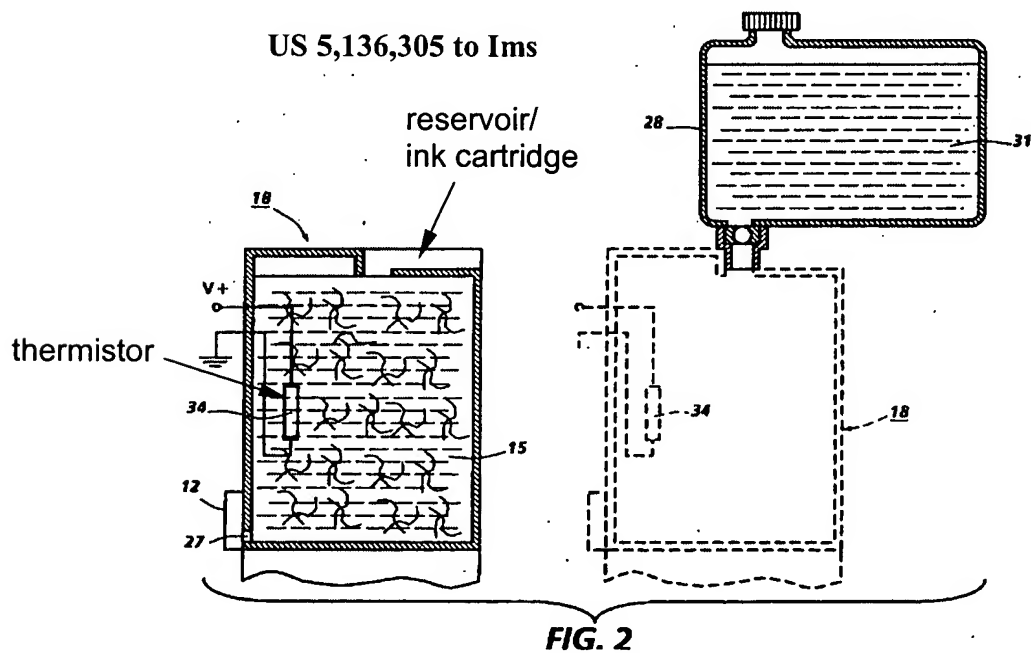
3. Claims 23 and 25 are rejected under 35 U.S.C. § 102(b) as being anticipated by US 5,136,305 to Ims. Ims discloses an imaging apparatus having all the recited elements of an imaging apparatus configured to form images on a sheet media (Figs. 1-4) including a reservoir (18) (Fig. 2) configured to support imaging media (ink); a thermistor device (34) configured to provide a level (note: Merriam-Webster's Dictionary 10th Ed. defines level as: the magnitude of a quantity considered in relation to an arbitrary reference value; broadly: MAGNITUDE, INTENSITY) signal corresponding to a quantity of imaging media within a majority of a depth-wise dimension of the reservoir; and a controller (see Fig. 1) coupled to in signal communication with the thermistor device and configured to control at least one operation (i.e. re-filling) of the imaging apparatus in accordance to the level signal (as recited in claim 23); and wherein the thermistor device is further configured to provide the level signal in correspondence to a level of

Art Unit: 2856

the imaging media in contact with a lengthwise portion of the thermistor device (as recited in claim 25).



US 5,136,305 to Ims



Art Unit: 2856

4. Claims 27-29 are rejected under 35 U.S.C. § 102(b) as being anticipated by US 5,136,305 to Ims. Ims discloses an apparatus having all the recited elements (Figs. 1-4) including a reservoir (18) (Fig. 2) configured to support imaging media (ink); a thermistor device (34) configured to provide a level (note: Merriam-Webster's Dictionary 10th Ed. defines level as: the magnitude of a quantity considered in relation to an arbitrary reference value; broadly : MAGNITUDE, INTENSITY) signal corresponding to a quantity of imaging media within a majority of a depth-wise dimension of the reservoir (as recited in claim 27); wherein the apparatus is configured to electrically couple the level signal to a controller (16) of an imaging apparatus (see Fig. 1) (as recited in claim 28) and wherein the apparatus defines an imaging media cartridge (see Fig. 2) for use with an imaging apparatus (as recited in claim 29).
5. Claim 49 is rejected under 35 U.S.C. § 102(b) as being anticipated by US 5,136,305 to Ims. Ims discloses a media level measurement apparatus having all the recited elements (Figs. 1-4) including a thermistor means (34) for providing a level (note: Merriam-Webster's Dictionary 10th Ed. defines level as: the magnitude of a quantity considered in relation to an arbitrary reference value; broadly : MAGNITUDE, INTENSITY) signal corresponding to a level of an imaging media in contact with a lengthwise portion of the thermistor means (see Fig. 2)

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

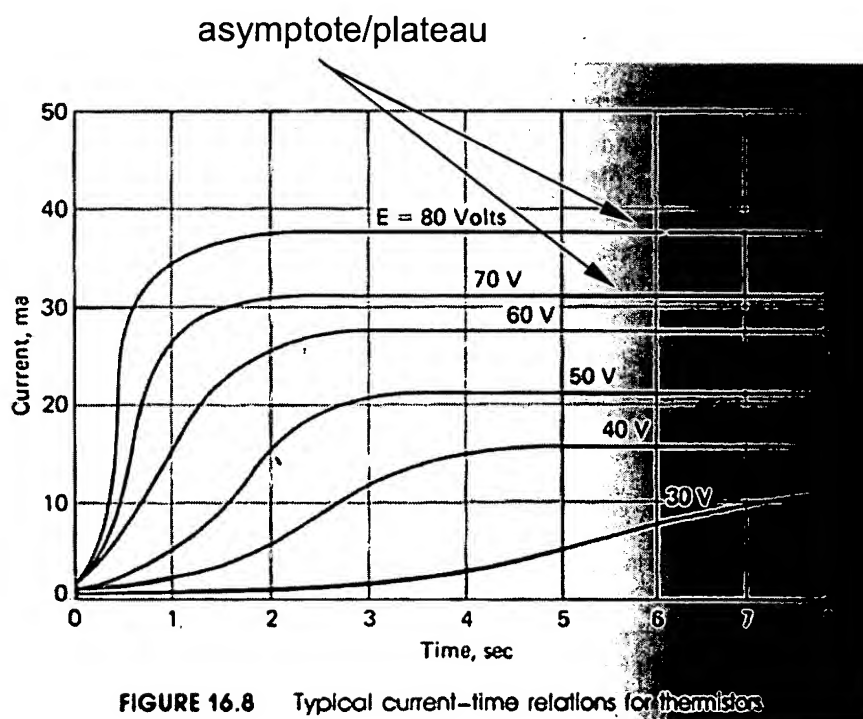
7. Claims 1, 3, 4, 6, 8, 9 are rejected under 35 U.S.C. § 103(a) as being unpatentable over US 5,136,305 to Ims and Beckwith et al. "Mechanical Measurements." Ims discloses a media level measurement apparatus including a controller to provide a first signal (electrical pulse) and a second signal (sampling signal); a source (current/voltage/power) to provide an electrical current in response to the first signal (as recited in claim 4); a thermistor device (34) corresponding to a level (note: Merriam-Webster's Dictionary 10th Ed. defines level as: the magnitude of a quantity considered in relation to an arbitrary reference value; broadly: MAGNITUDE, INTENSITY) of imaging media (ink) (as recited in claim 3) in contact with and supported in the lengthwise portion of the thermistor device (see Fig. 2) (as recited in claim 8); a signal processor (16) configured to provide a media level signal in accordance with a comparison between the level signal in response to the second signal. Ims does not expressly disclose the sensing of the ambient temperature via a sensor having substantially equivalent temperature coefficient as the thermistor within the media (as recited in claim 6), and the waiting for a predetermined period of time before sensing the level signal from the thermistor (as recited in claims 43, 44 and 47). Beckwith et al. teach that a thermistor inherently must have a reference temperature (i.e. ambient temperature T_0) via equations 16.3 and 16.3a to function correctly in

$$R = R_0 e^k$$

$$k = \beta \left(\frac{1}{T} - \frac{1}{T_0} \right) \text{ (eqns. 16.3 and 16.3a)}$$

Art Unit: 2856

determining the change in resistance, and thus determining the temperature as well as the typical current-time response (see FIGURE 16.8 below) of a thermistor (i.e. wherein the current increases and levels-off or plateaus after a period of time. It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ a sensor (i.e. and additional thermistor having substantially equivalent temperature coefficients, thus responding in a similar manner to the thermistor within the media) measurement of the ambient atmosphere (or any initial reference temperature) for proper temperature measurement via the thermistor as well as waiting a predetermined time period before taking a level signal, as taught by Beckwith et al., modifying the method of measuring a media level disclosed by Ims, thus allowing the thermistor to fully heat to operating, stable temperature.



Beckwith et al.

Art Unit: 2856

8. Claims 43-47 are rejected under 35 U.S.C. § 103(a) as being unpatentable over US 5,136,305 to Ims and Beckwith et al. "Mechanical Measurements." Ims discloses a method of measuring a media level (Figs. 1-4) including providing a thermistor device (34); supporting a lengthwise portion of the thermistor device in contact with the imaging media (ink) (as recited in claim 46) in a depthwise direction (see Fig. 2) (as recited in claim 45); applying an electric pulse to the thermistor device (i.e. current/power) sampling voltage over time (see Fig. 4) for sensing a level signal from the thermistor device over time and providing a media level signal in response thereto. Ims further discloses that the resistance of the thermistor is dependent on its temperature, and that the resistance is used to indicate the temperature and to make the measurement insensitive to ambient temperature fluctuations, it is desired to measure the change in temperature of the thermistor (via its change in resistance) during the time the external power/current is supplied) (Ims: col. 4, lines 57-66). Ims does not expressly disclose the sensing of the ambient temperature, and the waiting for a predetermined period of time before sensing the level signal from the thermistor (as recited in claims 43, 44 and 47). Beckwith et al. teach that a thermistor inherently must have a reference temperature (i.e. ambient temperature T_0) via equations 16.3 and 16.3a to function correctly in determining the change in resistance, and thus determining the temperature as well as the typical current-time response (see FIGURE 16.8 below) of thermistors (i.e. wherein the current increases and levels-off or plateaus after a period of time. It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ a sensor or temperature measurement of the ambient atmosphere (or any initial reference temperature) for proper temperature measurement via the thermistor as well as waiting a predetermined time period before taking a level signal, as taught by Beckwith

Art Unit: 2856

et al., modifying the method of measuring a media level disclosed by Ims, thus allowing the thermistor to fully heat to operating, stable temperature.

9. Claim 48 is rejected under 35 U.S.C. § 103(a) as being unpatentable over US 5,136,305 to Ims and Beckwith et al. "Mechanical Measurements." Ims discloses a medial level measurement apparatus including means for providing a first signal (i.e. electrical pulse) and a second pulse (i.e. sampling signal); means for providing an electrical current in response to the first signal to energize a thermistor (34); means for providing a level signal corresponding to a level of media (ink) in response to the electrical current (i.e. resistance response of thermistor means for providing a level signal); and means for providing a media level signal and the temperature signal in response to the second (i.e. sampling) signal; Ims further discloses that the resistance of the thermistor is dependent on its temperature, and that the resistance is used to indicate the temperature and to make the measurement insensitive to ambient temperature fluctuations, it is desired to measure the change in temperature of the thermistor (via its change in resistance) during the time the external power/current is supplied) (Ims: col. 4, lines 57-66) and that the voltage is sampled over time (see Fig. 4). However, Ims does not expressly disclose the sensing of the ambient temperature, however, Beckwith et al. teach that a thermistor inherently must having a reference temperature (i.e. ambient temperature T_0) via equations 16.3 and 16.3a to function correctly in determining the change in resistance, and thus determining the temperature. It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ a sensor or temperature measurement of the ambient atmosphere, or any other initial reference temperature, for proper temperature measurement via the thermistor.

Art Unit: 2856

10. Claim 24 is rejected under 35 U.S.C. § 103(a) as being unpatentable over US 5,136,305 to Ims. Ims discloses an imaging apparatus having all of the elements stated previously. Ims does not expressly disclose communication signals to a user computer indicating the level of media (ink) or status condition thereof. However, it is considered old and well known that controllers send information back and forth between host user computers indicating all types of information, including ink quantity/status, paper jams, out-of-paper, etc, thus it is considered well within the purview of one having ordinary skill in the art to employ such signals, or any other desired signal representative of the media (ink) level within the imaging apparatus to indicate to a user of the status thereof.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Domorazek, Poole, DeLouise et al., Altfather et al., Hodgetts, Hine et al., Beaubatie et al., and Kern all teach various aspects of the instant invention.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Fitzgerald whose telephone number is (571) 272-2843. The examiner can normally be reached on Monday-Friday from 7:00 AM to 3:30 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams, can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or

Art Unit: 2856

Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



JF

11/15/2004



HEZRON WILLIAMS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800